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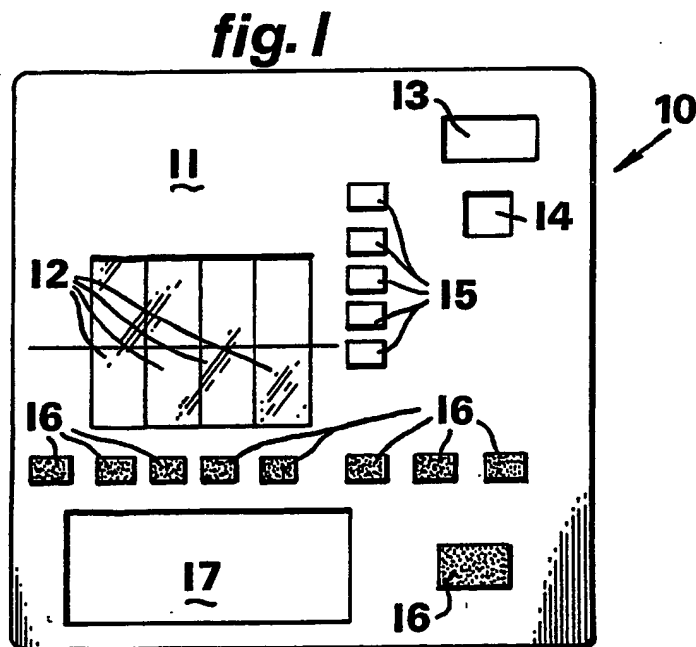
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(54) **Electronic game apparatus**

(57) Hand-held electronic game-playing apparatus has a casing 11 supporting liquid-crystal display devices 12, 13, 14 and 15, and control buttons 16 connected to an internal control circuit operating on a pre-determined program. The casing also supports a card reader for reading data encoded on a magnetic strip of a card inserted into the reader, and optionally also writing data to that strip. A battery-holder is built into the casing to carry batteries for powering the game, which may be activated only by inserting a card into the reader. The display devices 12 may represent reels of a fruit-machine, any winnings being written onto the card magnetic strip.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1982.

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fig. 1

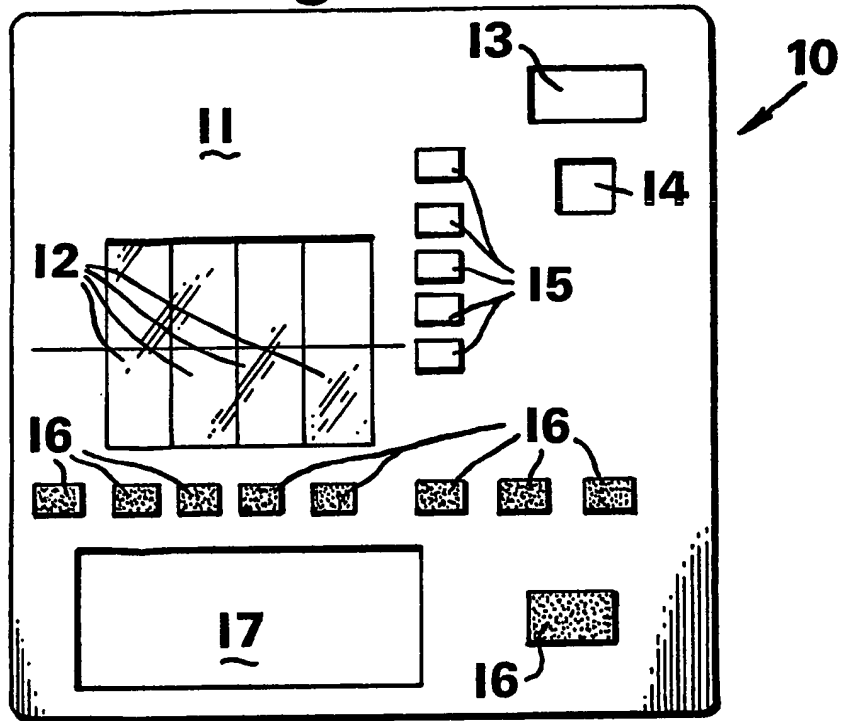


fig. 3

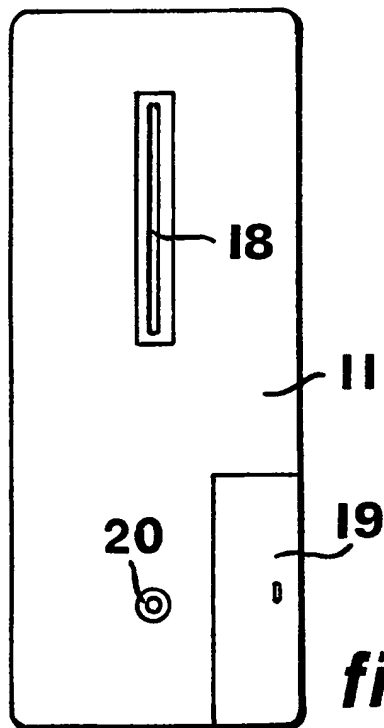
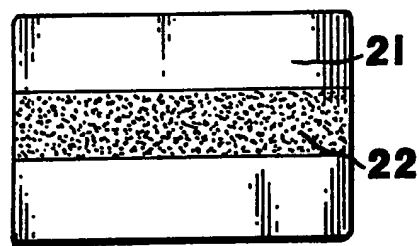


fig. 2

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ELECTRONIC GAME APPARATUS

This invention relates to electronic game apparatus and in particular to such apparatus which is readily portable and allows the playing of a game thereon.

5 Electronic game apparatuses are well known and are manufactured both for adults and for children, alike. However, those electronic games which allow gambling, so that it is possible to lose or gain financially, are usually large scale commercial machines such as fruit
10 machines, poker machines and the like. These machines are of necessity not portable and are usually located in public houses or arcades. It is possible to purchase pocket games and computer programmes which simulate large-scale games, but these can only be played for a
15 hypothetical score and not for financial gain or loss. In the case of such pocket games or programmes there is only one financial outlay and that is the original cost of purchasing the game or programme package, but in the case of static machines it is necessary for the user to
20 make a financial outlay whenever a game is played, either to purchase tokens in order to use the machine or by inserting money directly into the machine in order to commence play.

This invention seeks to provide a readily portable electronic game apparatus arranged so that a financial outlay may have to be made before the game can be played.

5 Accordingly, this invention provides electronic game apparatus which comprises a readily-portable casing in which are mounted a display device, input means operable by a user, a control circuit adapted to accept inputs from the input means and to drive the display
10 device so as thereby to allow the playing of a game, means for supplying the apparatus with electrical power, and a card reader for accepting and reading data from an operating card inserted therein, whereby data read from the card may enable the control circuit to allow the
15 playing of a game.

In this specification, the term 'readily-portable' as used in relation to the apparatus means that the apparatus can with ease be transported by hand. Being readily-portable, the apparatus can be easily held in
20 one hand and played with the other, or could be placed on the user's lap or on a table. Such apparatus thus is particularly suitable for use in an aircraft or other vehicle.

It will be appreciated that with the apparatus of
25 this invention, it is possible to play a game when an

operating card which carries information - for instance on a magnetic strip - is inserted into the apparatus. Once the card has been inserted, the information carried by the card is read by the card reader which produces an
5 electronic signal fed to the control circuit, which controls the operation dependent thereon. For example, the card may carry data allowing a number of plays, and a charge may be made for such a card.

The display device of the electronic game
10 apparatus is preferably a liquid crystal display, because this type of display is more adaptable to the configurations required for the playing of many types of game, and such displays can within relative ease be driven by computerised control circuits. Alternatively,
15 the display device may comprise a light-emitting diode array, but this generally requires a higher drive current than a liquid crystal display.

In order to be able to play a game once the apparatus has been activated, the input means is
20 operable by a user to control the game sequence. Most conveniently, the input means comprise a plurality of push-button switches. Alternatively, the input means may comprise a plurality of levers or pressure sensitive pads.

25 The input means send instructions to the control

circuit contained within the apparatus, which conveniently comprises a central processing unit in association with a control programme, arranged to control the sequence of play of a game, by accepting
5 inputs from the input means and driving the display device dependent thereon. This central processing unit may be in the form of a micro-computer controlled by a suitable programme, for instance burned in a ROM (read-only memory) forming a part of the control circuit.
10 The control circuit could of course be hard-wired, so no variations to the game may be introduced.

The electronic game apparatus requires a power supply means in order to be able to operate; such a power supply means advantageously comprises a battery
15 holder and means to connect a held battery to the control circuit. In this way, simply by loading the apparatus with batteries the apparatus may be activated. An alternative power supply means may comprise photo cells, either gallium arsenide or most conveniently
20 silicon; thus simply by exposing the cells to sufficiently bright light the apparatus will be supplied with power. However, the power supply means may comprise an externally-accessible connector, which allows the apparatus to be connected to an external
25 power supply via a suitable cable. By this means it

may be possible for the apparatus to be played within an aircraft or other vehicle by using a cable connected to the power supply of said aircraft or vehicle.

The apparatus is provided with a card reader to
5 enable the control circuit to read and accept
information from an operating card. In the case of a
card having a data-carrying magnetic strip, the card
reader will include an electromagnetic head arranged to
read data from that magnetic strip. Preferably the
10 card reader may also have the ability to write data to
the magnetic strip on an inserted card. This ability
to write data to a card enables any winnings gained
during a game to be written on to the card. Thus, when
the card is removed from the apparatus, the user may
15 return the card to a supplier for reimbursement of the
amount recorded thereon. It is therefore possible for
the user to gamble with money using such an apparatus
and card because money may have to be paid for the card
in the first instance, but if there are any winnings,
20 those may subsequently be reclaimed.

As an alternative to a card reader which is
adapted to read magnetic strips, the reader may be
arranged to accept and read data from a card having
notches on at least one edge thereof or apertures in the
25 area thereof. However, the writing of data to such a

card would be significantly more difficult than in the case of a card having a magnetic strip.

The electronic game apparatus may be configured to simulate the operation of a conventional fruit machine.

5 To this end, a number of display devices may be provided, at least one of which is adapted to represent three or four reels carrying various distinguishable symbols, the display of which is controlled by the control circuit. The input means may then include
10 buttons to cause a start of operation, hold, gamble and collect functions, and so on. Another display may indicate the number of plays available, the contents of a 'bank', and so on.

This invention extends to electronic game
15 apparatus as described above in combination with a card carrying data concerning the playing of the game, which card is insertable into the card reader of the apparatus so that data may be read therefrom, thereby to control the operation of the apparatus.

By way of example only one specific embodiment of an electronic game apparatus according to the invention will now be described in detail, reference being made to the diagrammatic accompanying drawings, in which:-

5 Fig. 1 is a front view of the embodiment of the electronic game apparatus according to this invention; Fig. 2 is a side view of the apparatus of Fig. 1; and Fig. 3 is a plan view of a card used to operate said apparatus.

10 The electronic game apparatus 10 shown in the drawings is a hand-held portable apparatus, which is specifically adapted for operation in combination with a card such as shown in Fig. 3. This particular embodiment of the electronic game apparatus is
15 configured to allow the playing of a game similar to that playable in a standard electronic or mechanical fruit machine.

Referring to Fig. 1, there is a casing 11, formed from moulded plastics and in which are mounted display
20 devices 12, 13, 14 and 15, which in this embodiment are liquid crystal displays. In addition to the display devices there is also a plurality of control buttons 16 mounted within the casing 11, which control buttons 16 correspond in function to those which are usually found
25 on many fruit machines. Additionally, printed in an

area 17 upon the casing 11 is a set of groups of symbols, with the corresponding value awarded to each complete group. Within the casing 11, there is a control circuit (not shown) which is provided with a
5 central processing unit and an ROM programme storage device, the control circuit serving to accept inputs from the buttons 16 and to drive the display devices 12 to 15.

Mounted with the casing 11 is a card reader (not
10 shown) able to read data carried by a magnetic strip on a card inserted into the reader. The casing 11, as shown in Fig. 2, has a slot 18 on one side which allows such a card to be fed into the card reader. The reader is arranged automatically to read the data carried by
15 the magnetic strip on insertion of a card, and to supply the read data to the control circuit. Provided that valid data is read, the control circuit is enabled to allow the playing of a game on the apparatus. The card reader is also arranged to be able to write data to the
20 magnetic strip and therefore any winnings may be written on to the magnetic strip at a suitable point in the game.

Also within the casing 11 is a battery holder including battery connection terminals (not shown) and
25 access is gained to the battery holder by releasing a

slidable cover 19. The apparatus 10 when loaded with an appropriate battery is thus provided with an internal power source. Also mounted on the casing 11 is power supply connector 20, which enables the apparatus to be
5 linked to an external electrical supply.

Figure 3 shows a card 21 for use with the apparatus. Such a card is made of plastics material and is provided on its surface with a magnetic strip 22. Prior to the use of the card in the apparatus the
10 magnetic strip 22 is loaded with information. On insertion of the card 21 into the apparatus, the card reader reads the data from the card and immediately transmits it to the control circuit. In this particular embodiment, the card reader is also arranged so as to be
15 able to write data to the magnetic strip 22.

In use the apparatus is activated by the insertion of the card 21, which has prior to its insertion been loaded with information on its magnetic strip 22. Inserting the card 21 into the slot 18 causes the card
20 reader (not shown) to read and transmit the information on the magnetic strip 22 to the control circuit. Once the information has been received by the central control circuit, and, assuming the information to be valid, the apparatus is activated and the user may commence the
25 playing of a game.

In this particular embodiment of the invention, the display devices 12 to 15 and control buttons 16 are suitably adapted so that a game similar to that played on a commercial fruit machine is played using the apparatus. In order to achieve such an effect, display device 12 is adapted to represent four separate reels carrying a variety of distinguishable symbols. Each reel of symbols appears to rotate, bringing into vision another symbol, whilst the previous symbol is moved away from the central point of vision. Usually on a commercial fruit machine there is a display illustrating sequentially the increasing multiples of the gambles which the user may take or may have taken, and such a display is also provided in this apparatus by liquid crystal display 15. The apparatus is also provided with a display device 13 which represents the total amount of winnings accumulated and also a display device 14 which represents the remaining number of games available to the user.

Obviously, the playing of the simulated fruit machine is much the same as any standard fruit machine. However, in this readily portable embodiment of a fruit machine, the user does not actually collect money or tokens as a result of any winnings from the game, but on actuating a collect button, the totalled winnings are

credited to the user by being written to magnetic strip
22 provided on the card 21. It is then possible to
remove the card 22 with the recorded winnings and then
either reuse the card 21 at a later date in the same or
5 similar apparatus, or - if the user wishes - return
the card 21 to the supplier and reclaim the winnings.

CLAIMS

1. Electronic game apparatus which comprises a readily-portable casing in which are mounted a display device, input means operable by a user, a control circuit adapted to accept inputs from the input means
5 and to drive the display device so as thereby to allow the playing of a game, means for supplying the apparatus with electrical power, and a card reader for accepting and reading data from an operating card inserted therein, whereby data read from the card may
10 enable the control circuit to allow the playing of a game.
2. Apparatus according to Claim 1, wherein the card reader is arranged for use with an operating card which carries information encoded on a magnetic strip.
- 15 3. Apparatus according to Claim 1 or Claim 2, wherein the display device comprises a liquid crystal display.
4. Apparatus according to any of Claims 1 to 3, wherein the input means comprise a plurality of push-button switches or pressure sensitive pads.
- 20 5. Apparatus according to any of the preceding Claims, wherein the control circuit comprises a central processing unit arranged to operate in association with a control program, whereby the sequence of play of a game is controlled by accepting inputs from the

input means and driving the display device dependent thereon.

6. Apparatus according to Claim 5, wherein the central processing unit is in the form of a micro-computer controlled by a suitable program carried in a ROM forming a part of the control circuit.

7. Apparatus according to any of the preceding Claims, wherein said means for supplying power comprises a battery holder and means to connect a held battery to the control circuit.

8. Apparatus according to any of Claims 1 to 7, wherein said means for supplying power comprises an externally-accessible connector by means of which the apparatus may be connected to an external power supply via a suitable cable.

9. Apparatus according to Claim 2 or any Claim dependent thereon, wherein the card reader is adapted to permit the writing of data to the magnetic strip on an inserted card, as well as the reading of data therefrom.

10. Electronic game apparatus according to any of the preceding Claims in combination with a card carrying data concerning the playing of the game, which card is insertable into the card reader of the apparatus so that data may be read therefrom, thereby to control the operation of the apparatus.

11. Electronic game apparatus according to Claim 1 or

Claim 9 and substantially as hereinbefore described
with reference to and as illustrated in the
accompanying drawings.